

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, Washington 98101

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, 33 U.S.C. § 1251 et seq., as amended by the Water Quality Act of 1987, P.L. 100-4 (the "Act"),

THE MUNICIPALITY OF ANCHORAGE and
THE ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
(hereinafter "Permittees")

are authorized to discharge from all municipal separate storm sewer system outfalls existing as of the effective date of this Permit, to receiving waters which include the Eklutna River, Edmonds Creek, Mirror Creek, Peters Creek, Fire Creek, Eagle River, Meadow Creek, South Fork Eagle River, Ship Creek, Chester Creek, North Fork Chester Creek, Middle Fork Chester Creek, South Fork Chester Creek, Fish Creek, Campbell Creek, North Fork Campbell Creek, South Fork Campbell Creek, Little Campbell Creek, Craig Creek, Furrow Creek, Hood Creek, Little Survival Creek, Rabbit Creek, Little Rabbit Creek, Potter Creek, Bird Creek, Mink Creek, Indian Creek, and Glacier Creek, their tributaries, associated lake systems, and wetlands located within the corporate limits of the Municipality of Anchorage in accordance with the conditions set forth herein.

This permit shall become effective October 28, 1998.

This permit and the authorization to discharge shall expire at midnight,
October 28, 2003.

Signed this 28th day of September, 1998.

/s/ Philip G. Millam
Director, Office of Water, Region 10
U.S. Environmental Protection Agency

In accordance with the Regional Administrator's December 3, 1998 denial of the request by Cook Inlet Keeper and the Alaska Center for the Environment for an evidentiary hearing, this permit shall become effective **January 5, 1999.**

This permit and the authorization to discharge shall expire at midnight **October 28, 2003.**

Signed this 20th day of January, 1999.

/s/ Randall F. Smith
Director, Office of Water, Region 10
U.S. Environmental Protection Agency

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PART I APPLICABILITY

A. PERMIT AREA

This Permit covers all areas within the corporate boundary of the Municipality of Anchorage served by the municipal separate storm sewer system (“MS4”) owned or operated by the Permittees.

B. DISCHARGES AUTHORIZED UNDER THIS PERMIT

This Permit authorizes the discharge of storm water to waters of the United States from: (1) all portions of the MS4 owned or operated by the Municipality of Anchorage; and (2) portions of the MS4 within State of Alaska highway rights-of-way located within the corporate boundaries of the Municipality of Anchorage that are owned or operated by the Alaska Department of Transportation and Public Facilities. This Permit also authorizes the discharge of storm water commingled with flows contributed by process wastewater, non-process wastewater, and storm water associated with industrial activity, provided that the commingled flows fall within at least one of the categories of covered non-storm water discharges set forth in Part I.D. of this Permit.

C. PERMITTEES’ RESPONSIBILITIES

1. Each Permittee is individually responsible
2. or permit compliance:
 - a. related to portions of the MS4 owned or operated solely by that Permittee; and
 - b. where this Permit directs action or inaction by that named Permittee.
3. Each Permittee is jointly responsible for permit compliance:
 - a. related to portions of the MS4 where operational or storm water management program implementation authority has been transferred from one Permittee to another in accordance with an interagency or interjurisdictional agreement;
 - b. related to portions of the MS4 where Permittees jointly own or operate a portion of the MS4; and
 - c. related to the submission of plans, reports, strategies and assessments required by Part II of this Permit.

D. LIMITATIONS ON PERMIT COVERAGE

1. ***Non-Storm Water.*** Discharges of non-storm water are not authorized by this Permit except where such discharges satisfy one of the following three conditions:
 - a. The non-storm water discharges are in compliance with a separate NPDES permit;
 - b. The non-storm water discharges result from a spill and:
 - (1) are the result of an Act of God where reasonable and prudent measures have been taken to minimize the impact of such discharge; or
 - (2) consist of emergency discharges required to prevent imminent threat to human health or severe property damage, provided that reasonable and prudent measures have been taken to minimize the impact of such discharges; or
 - c. The non-storm water discharges satisfy each of the following two conditions:
 - (1) The discharges consist of water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR § 35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, street wash water, or flows from emergency fire fighting activities; and
 - (2) The discharges are not sources of pollution to waters of the United States. A discharge will be considered a source of pollution to waters of the United States if it:
 - (a) causes excessive foam in the receiving waters or contains floating and/or settleable solids;
 - (b) contains oil or other substances in amounts sufficient to create a visible film or sheen on the receiving waters;

- (c) contains substances that are in amounts sufficient to be unsightly or deleterious or which produce color, odor, or other conditions to such a degree as to create a nuisance;
- (d) contains any substance, or combination of substances, in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants or humans;
- (e) contains any substances or combination of substances in amounts that will cause or contribute to the growth of aquatic plants or algae to such degree as to create a nuisance, be unsightly or otherwise impair the designated use;
- (f) results in the discharge of sufficient quantities of pollutants that would cause a violation of water quality standards; or
- (g) results in the degradation or loss of State-designated beneficial uses of receiving waters (unless authorized by the State in accordance with the State's Antidegradation policy).

PART II

STORM WATER MANAGEMENT PROGRAM

Permittees shall develop and implement a Storm Water Management Program which shall include all controls necessary to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (“MEP”). The Storm Water Management Program should employ best management practices (“BMPs”), control techniques, system design and engineering methods, and other appropriate provisions.

The Storm Water Management Program shall cover the term of this Permit and shall be updated as necessary, or as required by the Regional Administrator, to ensure compliance with Section 402(p)(3)(B) of the Clean Water Act, 33 U.S.C. § 1342(p)(3)(B). Modifications to the Storm Water Management Program shall be made in accordance with Part IV.H. of this Permit. The Storm Water Management Program and all approved updates made in accordance with Part IV.J. of this Permit, are hereby incorporated by reference. All components, conditions and requirements of the Storm Water Management Program are enforceable as conditions of this Permit.

All plans requiring submittal for review and approval shall be submitted to the U.S. Environmental Protection Agency (“EPA”) and the Alaska Department of Environmental Conservation (“ADEC”) in accordance with the requirements identified in Part II.A. and the procedures identified in Part IV.K. of this Permit. EPA, in consultation with ADEC, shall have the right to disapprove, or require modifications for approval to plans, within sixty (60) days of receipt. If EPA does not disapprove such plans within sixty (60) days, they shall be deemed approved.

A. STORM WATER MANAGEMENT PROGRAM REQUIREMENTS

1. ***Structural and Source Control Measures.*** The MS4 and any storm water structural and source controls shall be operated in a manner to reduce the discharge of pollutants to the MEP.
 - a. ***Maintenance Activities and Maintenance Schedule.*** Permittees shall operate the existing structural control maintenance programs as detailed in Sections 3 and 5A of Part 1 of the Permit Application, which shall include the following:
 - (1) ***Inspection and Maintenance Schedules.*** Permittees shall revise Sections 5.8.1.1 and 5.8.1.2 of Part 2 of the Permit Application to include definitive inspection and maintenance schedules for all Permittee-owned structural controls. Inspection schedules shall include the frequency of routine inspections for all categories of structural controls, including wetlands used as storm water treatment, as well as a description of the inspection criteria and

procedures. Maintenance programs shall establish guidelines and criteria for maintenance activities that are to be implemented for Permittee-owned structural controls, as well as a description of the maintenance activities required, such as “disposal of sediment or removal of debris.” Permittees shall identify and submit the locations of all permittee-owned structural controls to the Regional Administrator with the first annual report due twelve (12) months from the effective date of this permit. The inspection and maintenance schedule shall be submitted to the Regional Administrator with the second annual report due twenty-four (24) months from the effective date of this Permit.

- (2) ***Inspection and Maintenance Record-keeping.*** Each Permittee shall maintain an internal record-keeping system to track inspections and maintenance for those portions of the MS4 operated by that Permittee. Inspection and maintenance activities shall be recorded on standardized reporting forms and shall be submitted annually in conjunction with the annual reports beginning with the second annual report due twenty-four (24) months from the effective date of this permit.
- (3) ***Inspection and Maintenance Evaluations.*** Permittees shall conduct annual evaluations to assess the appropriateness of the inspection and maintenance schedule to: (1) ensure that controls are operating in a manner that reduces pollutants to the MEP; and (2) assist in setting priorities for program development. Modifications to the inspection and maintenance schedule shall be submitted as part of the annual report required by Part IV.G. of this Permit.
- (4) ***Structural and Source Controls Effectiveness Assessments and Analyses.*** Permittees shall continue to implement and refine the existing program to evaluate the effectiveness of structural and source controls. Information gathered and evaluated through this program shall be used in: estimating the effectiveness of controls; selecting, designing, and maintaining controls; and providing valuable information to management in land use planning and decision-making.
 - (a) During the five year term of this Permit, Permittees shall complete (at a minimum) the following structural and source control assessment projects which are further described in Appendix “A”:
 - i) Oil and Grit Separator BMP Assessment

- ii) Sedimentation Basin Assessment
- iii) Storm Water Treatment in Wetlands Assessment
- iv) Assessment of Non-Structural Source Controls to include increased use of Greenbelts and Pervious Surfaces
- v) Fecal Coliform Bacteriological Impacts Assessment [to include recommendations for future sampling frequencies & locations]
- vi) Stream Sediment - Characterization

(b) ***Schedule and Scope of Assessments.*** Permittees shall provide a proposed schedule and detailed overview of the scope of all assessments required in Part II.A.1.a.(4) for approval to the Regional Administrator within 90 days after the effective date of this Permit. This schedule shall be a topic for discussion during the first annual meeting as set forth in Part II.A.7. Assessments will be initiated according to the approved schedule and scope, with incorporation of modifications as set forth in writing by the Regional Administrator.

(c) ***Reporting Requirements.*** Permittees shall submit completed assessment reports to the Regional Administrator in accordance with the approved schedule required in Part II.A.1.a.(4)(b).

b. Areas of New Development and Significant Redevelopment. The Municipality of Anchorage shall limit to the MEP the discharge of pollutants in storm water resulting from new development and from redeveloped areas after construction is completed. The primary emphasis shall be on prevention, through planned development, and secondarily through storm water treatment via required implementation of BMPs. In accordance with this program area:

- (1) As part of its revisions to the Anchorage Bowl Comprehensive Development Plan the Municipality of Anchorage shall evaluate new land use policies to reduce urban runoff pollution to the MEP. Policies to be evaluated shall include, but are not limited to:
 - (a) Establishment of incentive plans to encourage preservation of at least 25% (or a lesser percentage based on site limitations) of native vegetation on developing acreage to aid in on-site treatment of runoff water.
 - (b) Establishment of minimum nondisturbance and structural setback requirements from lakes for developing acreage together with incentive programs for existing property owners who voluntarily elect to dedicate nondisturbance easements adjacent to lakes.
 - (c) Establishment of an incentive plan to encourage dedicated setbacks from waterbodies of at least 50 feet in new subdivisions within the Municipality, unless otherwise specified as greater in the Anchorage Wetlands Management Plan. The Municipality of Anchorage shall also evaluate the establishment of an incentive plan to encourage existing property owners to dedicate setbacks from waterbodies or otherwise reduce adverse impacts of storm water to waterbodies.
 - (d) Requiring permitting and review of land-clearing activities to retain as much pervious surface area as possible.
- (2) The Municipality of Anchorage shall establish an Open Space Plan for the purpose of guiding future growth and development in the Municipality while taking into consideration storm water impacts. The Open Space Plan shall be adopted and submitted to the Regional Administrator within twenty-four (24) months after the effective date of this Permit.
- (3) The Municipality of Anchorage shall submit a general schedule and list of actions describing the procedures under which the elements set forth in Part II.A.1.b.(1) of this Permit will be considered during the Anchorage Bowl Comprehensive Development Plan revision process to the Regional Administrator no later than 90 days after the effective date of this Permit.

- (4) The Municipality of Anchorage shall adopt a minimum of two of the elements set forth in Part II.A.1.b.(1), or equivalent incentive programs and shall report results to the Regional Administrator with the annual report in the year coinciding with completion of the Anchorage Bowl Comprehensive Plan revision. Extensions or modifications to this requirement can be requested in writing to the Regional Administrator in conjunction with the annual reports.
- (5) The policies, development regulations and permitting requirements adopted and implemented by the Municipality of Anchorage shall be no less stringent than policies and management strategies of the Anchorage Wetlands Management Plan.
- (6) The Municipality of Anchorage shall ensure that its local ordinances and design criteria are consistent with applicable State and Federal regulations, as well as with findings resulting from the assessments required in Part II.A.1.a.(4)(a).
- (7) ***New Development and Significant Redevelopment Program Requirements.*** To satisfy the requirements of this program, the Municipality of Anchorage shall comply with the following elements for all new development and significant redevelopment within the Municipal boundaries defined by this permit.
 - (a) The MOA shall develop and submit project review and approval procedures, for new development and significant redevelopment, as part of the first annual report required by Part IV.G. of this Permit. The Municipality of Anchorage shall begin implementation of these project review and approval procedures for new development and significant redevelopment within twelve (12) months of the effective date of this Permit. Project review and approval procedures shall include:
 - i) procedures for incorporating and addressing post-construction storm water quality concerns as part of the permitting process for new development and significant redevelopment,

- ii) a description of review standards (Permittees may review ADEC standards and modify in cooperation with ADEC, as appropriate) and a description of the site development review process, and
 - iii) minimum design criteria for all BMPs.
- (b) The Municipality of Anchorage shall develop an inspection and enforcement strategy for new development and significant redevelopment (private and public) to ensure that all specified BMPs are implemented in accordance with the approved plan. The Municipality of Anchorage shall submit, for review and approval, an inspection and enforcement strategy and procedures as part of the first annual report due twelve (12) months after the effective date of this Permit. Implementation shall begin within sixty (60) days after approval. An annual summary of activities shall be submitted as part of the annual report beginning with the second annual report due twenty-four (24) months after the effective date of this permit.
- (c) The MOA shall develop and provide staff training for personnel responsible for plan review and inspection of development sites. DOT&PF shall also develop and provide staff training for personnel responsible for plan review and inspection of DOT&PF development. Training shall include information on BMPs, their applications, and effectiveness. Training shall begin within two (2) years from the effective date of this permit. Summaries of the training (materials, dates, and attendees) shall be submitted as part of the annual reports beginning with the second annual report due twenty-four (24) months of the effective date of this permit.
- (d) The MOA shall provide public education to developers, landowners, and other potentially affected parties. Public education shall also target existing property owners to increase awareness on basic land use regulations within the Municipality of Anchorage. Summaries of the training (materials, dates, and attendees) shall be submitted as part of the annual reports beginning with the second annual report due twenty-four (24) months of the effective date of this permit.

- c. **Roadways.** Permittees shall operate and maintain public streets, roads, highways, and parking areas in a manner to reduce to the MEP the impact on receiving waters of discharges from the MS4. Permittees shall minimize to the MEP the discharge of pollutants, including those pollutants related to street sweeping, snow removal, deicing or sanding activities. Permittees shall continue their current practices of road, street, and highway maintenance, with improvements and modifications as required to reduce the pollutant load to the MEP. In addition, a program relating to the application of substances used in deicing operations, and the management of snow disposal areas shall be implemented. In accordance with this program area:
- (1) Permittees shall examine, assess, and implement procedures of deicing to ensure that there are no adverse impacts on water quality. Permittees shall submit existing studies of alternative deicing agents to EPA and ADEC no later than 90 days from the effective date of this Permit. Permittees shall complete and submit to EPA and ADEC studies of deicing agents under consideration, as further described in Appendix "A," within twelve (12) months of the effective date of this Permit. Investigative results and a management and monitoring plan that addresses deicer application areas, application and dilution rates of sand and chemical deicers, disposition of snow associated with removal efforts, recommended BMPs designed to reduce discharges to receiving waters to the MEP, and monitoring to determine BMP effectiveness shall be submitted to EPA for review and approval a minimum of thirty (30) days prior to further use of chemical deicers. This management and monitoring plan shall be adhered to by both MOA and DOT&PF and updated as information becomes available in subsequent monitoring efforts. Updates to the deicing management and monitoring plan shall be submitted to EPA with the annual reports as required in Part IV.G. of this Permit.
 - (2) Permittees shall examine, assess, and implement sanding procedures to ensure runoff is reduced to the MEP. Permittees shall establish a sand storage, application, and monitoring program to include volume balance and particulate analysis of material added to municipality streets. Permittees shall submit plans for street sanding and sweeping practices that reflect results of recent studies. Existing street sediment analysis shall be submitted to the Regional Administrator no later than 90 days from the effective date of this Permit. Permittees shall complete and submit to EPA and ADEC additional studies of street sediment impacts, further described in Appendix "A," within four (4) years of the effective date of this

Permit. Program updates and enhancements shall be submitted with the annual reports as required in Part IV.G. of this Permit;

- (3) By the end of the first year of the permit term, Permittees shall develop (or update) and implement a snow disposal policy that establishes requirements for all publicly-owned snow disposal sites. This snow disposal policy shall require the use of BMPs and an inspection and maintenance schedule and shall be part of Permittees' Storm Water Management Program.
- (4) Permittees shall not establish any new snow disposal site prior to providing an opportunity for public review and submittal of plan for review and approval from ADEC. Any new snow disposal site plan shall include controls to address the migration of meltwater to reduce the discharge of pollutants to the MEP to surface waters for the purpose of this permit.

d. ***Floodplain Management.*** The Municipality of Anchorage shall ensure that construction activities and development located in floodplain areas, and flood control devices be designed to prevent violations of Alaska State Water Quality Standards to the MEP. To satisfy this program area, the MOA shall comply with the following elements:

- (1) All development proposed within floodplains shall be assessed by the Municipality of Anchorage during the Flood Hazard Review process to ensure potential impacts on the water quality of receiving water bodies has been properly addressed. If a use, structure, or activity is proposed in a floodway or floodway fringe area, the MOA shall prohibit that proposal as stipulated in AMC Section 21.60.060.
- (2) Information regarding impervious surface area located in the floodplain corridors should be used (in conjunction with other environmental indicators) as a planning tool. The Municipality of Anchorage shall collect data on the percentage of impervious surface area located in floodplain boundaries for all development proposed after the effective date of this Permit. The Municipality shall collect similar data for existing development in floodplain areas, in accordance with the mapping program and other activities designed to improve water quality, as detailed in Appendix "A."
- (3) Critical unmapped areas shall be prioritized by the Municipality of Anchorage with an emphasis on developed and developing acreage and shall be submitted to the Federal Emergency Management

Agency (“FEMA”) for designation of flood hazard boundaries. Results shall be submitted to EPA with the second annual report required by Part IV.G. of this Permit.

- (4) The Municipality of Anchorage shall determine the status of compliance with the mandatory (five years or less) review of existing flood hazard maps as required by Chapter 21.60.020(B) of the Anchorage Municipal Code.
- e. ***Pesticide, Herbicide, and Fertilizer Application.*** Permittees shall implement the following program to control the discharge of pesticides, fertilizers, and herbicides to the MS4:
 - (1) Permittees shall develop a pesticide screening program which, at a minimum, shall incorporate the following elements:
 - (a) Permittees shall evaluate the use of pesticides, herbicides, and fertilizers in Anchorage by compiling readily available information from sources including, but not limited to, the Cooperative Extension Service, ADEC’s pesticide program, primary retail and wholesale outlet sources, and commercial applicators. The end result of this effort shall be to determine the types of products recommended and used in the Anchorage area. The information gathered through this effort shall be provided to the Regional Administrator and ADEC as part of the first annual report required by Part IV.G. of this Permit.
 - (b) Based on the above evaluation, Permittees shall develop and implement a field screening assessment design for pesticides detection and evaluation as per Appendix “A” of this Permit. Collected information shall be included in the annual reports required by Part IV.G. of this Permit.

- (2) Based on the information collected in year one (1) of this Permit, Permittees shall begin implementation of an ongoing education program in year two (2) of this Permit for promoting the proper use of pesticides, herbicides, and fertilizers with the overall goal of reducing, to the MEP, the discharges of such to the MS4. Such a program may incorporate existing materials such as those developed by the University of Alaska Cooperative Extension Service and ADEC. Permittees shall submit copies of all materials distributed as part of the public education program with the second annual report required by Part IV.G. of this Permit. Additional materials distributed thereafter shall be included in the annual reports.
 - (3) Based on the results of the field screening assessment and the available local information, Permittees shall develop and implement a plan for the on-going control of pesticide, herbicide, and fertilizer use within one year of completion of the field screening assessment. The plan shall include re-evaluation of the public education program with appropriate revisions. Permittees shall identify areas for which additional testing may be warranted and shall take all steps necessary for timely testing and appropriate implementation. The plan shall include the measures to be used for assessing program results. Actions taken under this condition shall be submitted as part of the annual report required by Part IV.G. of this Permit.
2. ***Illicit Discharges.*** Permittees shall implement a program to detect and eliminate illicit discharges into the MS4. Details of the program are to be incorporated into the annual report required under Part IV.G. of this Permit. The program shall include the following program areas:
 - a. ***Prevention.*** Permittees shall implement an ongoing program to detect and remove (or require the discharger to the MS4 to obtain a separate NPDES permit for) illicit discharges into the MS4.
 - (1) Permittees shall effectively prohibit non-storm water discharges (except those identified in the following subsection), to the MS4, including all used motor vehicle fluids and household chemical wastes, by enforcement of Municipal ordinances.
 - (2) Unless identified by either Permittees or the Regional Administrator as sources of pollutants to waters of the United States, the following non-storm water discharges need not be addressed by

Permittees' Illicit Discharge and Illegal Disposal Program: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR § 35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water.

- (3) Discharges and flows from emergency fire fighting activities shall not be addressed by Permittees' Illicit Discharge Program unless identified by either Permittees or the Regional Administrator as sources of pollutants to waters of the United States.
- b. ***Ongoing field screening.*** Permittees shall maintain an ongoing program to screen the MS4 for illicit discharges, to include, at a minimum, the following program elements:
- (1) Permittees shall conduct a visual inspection of all major outfalls during dry weather periods in years two (2) and five (5) of this Permit term. Permittees shall submit an inspection plan, listing the outfalls and inspections criteria, to the Regional Administrator for review and approval within 90 days of the effective date of this Permit. Permittees shall submit documentation regarding protocols and parameters of the field screening as part of the first annual report required by Part IV.G. of this Permit.
 - (2) Permittees shall conduct chemical analysis of the dry weather flow for those outfalls identified as likely to contribute pollutants to the storm drain system in accordance with the monitoring plan outlined in Appendix "A.". Chemical analysis shall be prioritized based on information obtained through visual inspections, citizen complaints, bioassessment monitoring, and/or previous monitoring results. Permittees shall submit results of this monitoring to the Regional Administrator and ADEC with the annual reports required in Part IV.G. of this Permit.
- c. ***Investigation of suspected illicit discharges.*** Permittees shall implement this program area to locate and eliminate suspected sources of illicit discharges to the MS4.

- (1) Permittees shall use the results of existing and on-going dry-weather screening and citizen reports as the primary basis for locating illicit discharges.
 - (2) The Municipality of Anchorage shall evaluate and properly address all citizen and agency reports of illicit discharges , as well as other information made available to the Municipality.
 - (3) Permittees shall perform field testing to identify and isolate sources of suspected illicit discharges in a timely manner.
 - (4) Permittees shall issue a notice of violation, when appropriate, to any party found responsible for the illicit discharge, connection or disposal.
 - (5) Permittees shall require an expeditious compliance schedule for the elimination of any illicit discharge by any party responsible for the illicit discharge.
 - (6) Permittees shall submit a copy of their procedures for the investigation of suspected illicit discharges with the first annual report required by Part IV.G. of this Permit.
 - (7) Permittees shall investigate the 45 outfalls identified in Table 5-4 of Section 5.9.3.1 of Part II of the Permit Application by the end of the second year of the Permit term. Conclusions and follow-up action resulting from these investigations shall be submitted to the Regional Administrator with the annual report due at the end of year two of the Permit term.
- d. ***Procedures to Prevent, Contain and Respond to Spills.*** Permittees shall finalize the Emergency Response Program identified in Section 5B of Part 1 of the Permit Application in order to formalize the spill response roles of state and municipal departments and to provide a coordinated response to spills that may discharge into the MS4. Final program plans shall be completed within twenty-four (24) months of the effective date of this Permit and shall be submitted with the second annual report required by Part IV.G. of this Permit.
- e. ***Public Reporting of Illicit Discharges.*** Permittees shall promote and facilitate public reporting of the presence of illicit discharges to the MS4.

- (1) Permittees shall establish and operate a central phone number (i.e., a hotline number) for public reporting of illicit discharges as stated in Section 5.9.1.2 of Part 2 of the Permit Application. Permittees shall establish procedures that govern the appropriate follow-up response to calls received through the hotline. The establishment and operation of a central phone number (i.e., a hotline number) shall be completed within twelve (12) months from the effective date of this Permit. Permittees shall submit procedures governing the appropriate follow-up response to calls received through the hotline to the Regional Administrator with the first annual report required by Part IV.G. of this Permit.
 - (2) Permittees shall establish and maintain a log that contains of a list of all reports, date of report, follow-up action taken, and results. Reports shall include all suspected illicit discharges, public and otherwise, requiring investigation by Part II.A.2.(c). A copy of this log shall be submitted with the annual reports required by Part IV.G. of this Permit.
 - (3) Permittees shall promote public reporting of illicit discharges through brochures and other means. Permittees shall submit program plans for the promotion of public reporting of illicit discharges with the first annual report required by Part IV.G. of this Permit.
- f. ***Educational and Public Information Activities.*** Permittees shall continue to implement and develop additional program elements where necessary to inform and educate the public on proper management and disposal of used oil, other automotive fluids, and household chemicals. Programs such as Free Dump Day are encouraged. Permittees shall develop a coordinated business and industry education program for implementation in the second year of this permit term, and continuing thereafter, to control illicit discharges as stated in Section 5.9.1.2 of Part 2 of the Permit Application.
3. ***Industrial and High Risk Runoff Program.*** Permittees shall implement a program to identify, monitor and control pollutants in storm water discharges to the MS4 from: municipal landfills (open and closed); hazardous waste recovery, treatment, storage, and disposal facilities; privately-owned snow disposal sites; facilities subject to Section 313 of the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. § 11023; and any other industrial facility that either the Permittees or the Regional Administrator determines is contributing a substantial pollutant loading to the MS4. The program shall include the following program procedures:

- a. ***Facility Identification:*** Permittees shall complete an identification of industrial and high risk runoff facilities and develop procedures to map and record details of the facilities. Procedures to identify, map, and record the high risk facilities shall be completed, and implementation commenced, within three (3) years of the effective date of this Permit. Mapping of all identified facilities shall be completed by the end of this permit term.
- b. ***Outreach.*** Permittees shall develop (or incorporate existing) educational and outreach materials concerning storm water runoff management at targeted industrial categories including, but not limited to: automotive repair shops, gas stations, snow disposal sites, nurseries and greenhouses, and floatplane and other transportation facilities. The development of educational materials (if necessary), and the distribution of such materials to the targeted industries shall be achieved within two years of the effective date of this Permit. All information developed and/or distributed shall be included in the annual report required by Part IV.G. of this Permit.
- c. ***Investigation of Wrongful Discharge.*** Permittees shall develop procedures to govern the investigation of the identified facilities suspected of contributing pollutants to the MS4, including a review, if applicable, of monitoring data collected by the facility pursuant to its NPDES permit. Procedures governing the investigation of identified facilities shall be submitted as part of the first and second annual reports required by Part IV.G. of this Permit.

Permittees shall work with such facilities to gain voluntary compliance in reducing pollutants to the MEP. Facilities that fail to cooperate and continue to contribute to the pollutant load or operate in violation of NPDES discharge permits shall be reported to the permitting agency for further action. Permittees shall make a good faith effort to track referrals to ensure appropriate measures are taken. Any activity arising from this program element shall be reported in the annual report required by Part IV.G. of this Permit for the year in which the activity took place.

4. ***Construction Site Runoff Program.*** Permittees shall implement a construction site runoff program to reduce, to the MEP, the discharge of pollutants from public and private construction sites. The program shall incorporate the following elements:

- a. ***Storm Water Quality Pollution Prevention Plans.*** The Municipality of Anchorage shall require property owners and developers to prepare and submit for approval Storm Water Pollution Prevention Plans for construction within the boundaries of the Municipality of Anchorage as of the effective date of this permit. Permittees shall implement procedures for site plan review that incorporate consideration of potential water quality impacts from construction sites within the Municipality of Anchorage.
- (1) Approved Storm Water Pollution Prevention Plans shall require appropriate BMPs to reduce runoff impacts to waterbodies to the MEP and shall contain provisions addressing erosion and sediment control, material containment, spill prevention, and other areas as applicable.
 - (2) Storm Water Pollution Prevention Plans for construction sites shall be subject to review and approval by the Municipality of Anchorage.
 - (3) The Municipality of Anchorage shall develop Storm Water Pollution Prevention Plan review and approval procedures and shall submit such procedures to the Regional Administrator as part of the first annual report required by Part IV.G. of this Permit. This submittal shall include:
 - (a) a description of the Storm Water Quality Pollution Prevention Plan review and approval process;
 - (b) written criteria and standards for plan approval; and
 - (c) a description of periodic staff training on control technologies and on the review and approval process.
- b. ***Structural and Non-structural BMPs.*** Permittees shall maintain and update existing requirements for the selection, implementation, installation, and maintenance of construction BMPs in years four (4) and five (5) of this permit term. The criteria for BMP selection and design shall consider such factors as project type, size, duration, soil type, and proximity to waters of the United States. BMP requirements, and subsequent modifications, shall be submitted as part of the annual reports required in Part IV.G. of this Permit.

- c. ***Procedures for Site Inspection and Enforcement.*** Permittees shall implement procedures for inspection and enforcement of control measures at construction sites.
 - (1) Permittees shall submit a description of the procedures and strategies for conducting site inspections and enforcement for review and approval with the first annual report required by Part IV.G. of this Permit. These procedures and strategies shall include:
 - (a) inspections to ensure BMPs are being installed and maintained according to the approved plan and that all pollution sources have been addressed;
 - (b) inspection strategy detailing frequency, prioritization, and follow-up;
 - (c) plans for training of inspection and enforcement staff; and
 - (d) enforcement provisions to insure compliance with requirements for operation and maintenance of BMPs.
 - (2) Permittees shall commence implementation of the site inspections and enforcement procedures within twenty-four (24) months of the effective date of this Permit.
 - d. ***Training and Education for Construction Site Operators.*** Permittees shall develop a training program for construction site operators and developers. Permittees shall submit a description of this training program with the first annual report required by Part IV.G. of this Permit. Implementation of the training program shall begin within twenty-four (24) months of the effective date of this Permit. Permittees shall ensure that:
 - (1) Such training is provided at a minimum of once per year; and
 - (2) Attendance at such training is encouraged through incentive programs or mandatory attendance requirements.
 - e. Permittees shall notify construction site owners operating sites greater than 5 acres in area of their additional responsibilities under the NPDES permitting program for construction site runoff.
5. ***Public Education Programs:*** Permittees shall employ educational and outreach opportunities to reduce, to the MEP, impacts to the MS4 from non-point source inputs caused by human activity.

- a. Permittees shall maintain public education activities with regard to storm water pollution prevention as required by Parts II.A.1.b., II.A.1.e., II.A.2., II.A.3., and II.A.4. of this Permit.
 - b. All public education and outreach materials distributed pursuant to this permit shall contain easily understood graphics and narratives converted from technical information on Anchorage area water quality.
 - c. Permittees shall establish an ongoing, broad-based technical advisory board to assist with providing information to public forums on issues related to storm water pollution and the monitoring program. The technical advisory board shall be comprised of members representing local, state, and federal agencies, non-profit interests, local citizens, and private experts and shall be established and submitted to the Regional Administrator within twelve (12) months of the effective date of this permit.
6. ***Monitoring Programs.*** Permittees shall establish a comprehensive monitoring program to: (1) assess and characterize aquatic resources, water quality problems and sources, (2) assist in problem prioritization and resource targeting, and (3) assist in evaluating the effectiveness of specific controls as well as the overall Storm Water Management Program. Permittees shall establish a set of environmental indicators that will require tracking and monitoring to address storm water impacts to the MS4 that are further described, with corresponding schedules, in Appendix “A” of this permit. Appendix “A” shall be submitted annually for review and approval and shall be included for discussion during the annual coordination meetings required in Part II.A.7 of this Permit. Appendix “A” shall, at a minimum, consist of the following:
- a. ***Structural and Source Control Assessments.*** Assessments to be completed during this Permit term are identified in Part II.A.1.a.(4)(a) of this Permit and Appendix “A.”
 - b. ***Watershed Mapping.*** Permittees shall map the Campbell, Chester, Rabbit, and Ship Creek watersheds during this Permit term. Details of the mapping program are contained in Appendix “A.”

- c. ***Sand and Deicer Impacts.*** Permittees shall continue to investigate the impacts of street sanding by performing a mass balance of street sediment, analysis of the street sediment adsorbed pollutants, and an analysis of commercial lot impacts from sediment buildup and runoff as identified in Part II.A.1.c.(2) of this Permit and Appendix "A." Permittees shall perform an analysis of the potential impacts of deicing agents in accordance with Part II.A.1.c.(1) of this Permit and Appendix "A."
 - d. ***Pesticides, Herbicides, and Fertilizers.*** Field screening and appropriate follow-up investigation shall take place as identified in Part II.A.1.e.(1) - (3) of this Permit and Appendix "A."
 - e. ***Illicit Discharges.*** Permittees shall perform dry weather field screening and appropriate investigative monitoring of outfalls as required in Part II.A.2.b. and Part II.A.2.c. of this Permit and Appendix "A."
 - f. ***Receiving Water Monitoring.*** Permittees shall conduct receiving water monitoring to obtain flow and event mean concentrations of fecal coliform, copper, lead, zinc, hardness, total suspended solids, turbidity, temperature, and pH in the Campbell, Chester, Rabbit, and Ship Creek watersheds. Permittees shall conduct a macroinvertebrate assessment in the Campbell, Chester, Rabbit, and Ship watersheds, and in at least three (3) additional Anchorage streams for which significant future development is anticipated. Details of these monitoring plans are included in Appendix "A."
 - g. ***Dry Weather and Wet Weather Periods.*** Permittees shall review the nationally recognized definitions for dry and wet weather periods and submit geographically appropriate modifications to the Regional Administrator for review and approval within six (6) months after the effective date of this permit.
7. ***Programmatic Coordination.*** Permittees shall conduct an annual meeting to coordinate their implementation of the Storm Water Management Program within their respective agencies as well as with other municipal, state, and federal agencies and groups who undertake activities that may impact, contribute to, or in some way overlap Permittees' storm water management efforts. The agenda for these annual meetings shall be comprised of topics of interest to the Permittees and the Anchorage Office of the EPA. Meetings shall be held approximately two months following submission of each annual report. The first meeting shall serve as an orientation and planning effort and shall take place no later than 90 days after the effective date of this Permit. The logistics for this first meeting will be handled by EPA (Permittees shall be active participants); all subsequent meetings will be organized by the Permittees. Such elements that Permittees shall consider for coordination efforts include public education relating to storm water management,

monitoring activities and results, the application of BMPs, data management using such techniques as GIS applications, staff and targeted training, enforcement, capital project support, and watershed planning. Permittees shall include a summary of the previous year's efforts and annual meeting in the annual report required by Part IV.G of this Permit. Information which Permittees shall consider for inclusion in the report of the annual meeting are the names and affiliations of those in attendance, the dates and times of meetings held to coordinate consistent approaches, and a comprehensive summary of the meetings.

B. DEADLINES FOR PROGRAM COMPLIANCE

Permittees shall implement the Storm Water Management Program in accordance with the compliance schedule detailed in Part III of this Permit.

C. LEGAL AUTHORITY

Each Permittee shall ensure that it retains legal authority to control discharges to and from those portions of the MS4 over which it has jurisdiction. This legal authority may be established by statute, ordinance, permit, contract, or order (or any combination thereof), and shall enable each Permittee to:

1. Control the contribution of pollutants to the MS4 by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity and the quality of storm water discharged from sites of industrial activity;
2. prohibit illicit discharges to the MS4;
3. control the discharge to the MS4 of spills, dumping or disposal of materials other than storm water;
4. control through an interagency agreement between Permittees the contribution of pollutants from one portion of the MS4 to other portions of the MS4;
5. require compliance with conditions in ordinances, permits, contracts, or orders; and
6. carry out all inspection, surveillance, and monitoring procedures necessary to determine compliance and non-compliance with permit conditions, including the prohibition on illicit discharges to the MS4.

D. STORM WATER MANAGEMENT PROGRAM RESOURCES

Permittees shall provide adequate finances, staff, equipment, and support capabilities to implement their activities under the Storm Water Management Program.

**E. TRANSFER OF OWNERSHIP, OPERATIONAL AUTHORITY, OR
RESPONSIBILITY FOR STORM WATER MANAGEMENT PROGRAM
IMPLEMENTATION**

Permittees shall implement the Storm Water Management Program on all new areas added to the MS4 as expeditiously as practicable, but not later than three years from addition of the new areas. Implementation may be accomplished in a phased manner to allow additional time for controls that cannot be implemented immediately. Prior to land annexation, Permittees shall include a schedule for extending the Storm Water Management Program to the annexed areas in the Storm Water Management Program. At least 30 days prior to transfer of operational authority or responsibility for Storm Water Management Program implementation, Permittees shall prepare a schedule for transfer of responsibility for Storm Water Management Program implementation on the effected portions of the MS4.

F. RETENTION OF STORM WATER MANAGEMENT PROGRAM RECORDS

Permittees shall retain the Storm Water Management Program developed in accordance with Parts II and III of this Permit for at least 3 years after coverage under this Permit terminates.

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PART III

SCHEDULES FOR IMPLEMENTATION AND COMPLIANCE

Reports of compliance or noncompliance with interim and final requirements contained in any compliance schedule of this Permit shall be submitted no later than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement

Table III.A. Schedules for Implementation and Compliance

Storm Water Management Program Component	Activity	Compliance Date
1. Structural and Source Control	a. Maintenance Activities and Maintenance Schedule - Identify locations of structural controls - Revision of Application Sections 5.8.1.1. & 5.8.1.2, and program development - Submit Inspection and Maintenance records - Effectiveness Assessments of Structural and Source Controls	- 12 months after effective permit date - 24 months after effective permit date - with annual reports - per schedule in Appendix "A"
	b. Areas of New Development and Significant Redevelopment - Comprehensive Master Planning Process - Resulting actions - Open Space Plan Project Review and Approval Procedures - Implementation of Approved Procedures Post-Construction Inspection & Enforcement Strategy - Submit Strategy for Review & Approval - Implement Strategy - Submit Summaries of inspections & enforcement	- 90 days after effective permit date - Concurrent with Final Comprehensive Plan - 24 months after effective permit date - 12 months after effective permit date - 12 months after effective permit date - 60 days after approval - annually
	c. Roadways De-icing - Complete/Submit existing studies/management plan - Submit New Assessments Street Sanding - Complete/Submit existing studies - Submit New Assessments Snow Disposal Policy	- 90 days after effective permit date - 12 months after effective permit date (plan prior to chemical deicing) - 90 days after effective permit date - 24 months after effective permit date - 12 months after effective permit date
	d. Flood Management - Collect data on impervious surface area - Identify critical unmapped areas/submit to FEMA & results to EPA	- begin after effective permit date according to schedule in Appendix "A" - 24 months after effective permit date
	e. Pesticide, Herbicide, and Fertilizer Application - Study of Use & Application - Field Screening - Development and Implementation of Public Education Program - Submit Long-term plan for on-going control of Pesticides	- 12 months after effective permit date - contingent on Use Study per schedule in Appendix "A" - begin in year 2 of the permit term & continue throughout permit term - 12 months after completion of field screening

2. Illicit Discharge Program	<p>a. Prevention of illicit connections and discharges and improper disposal</p> <p>b. Ongoing field screening - Protocols of Screening Process - Visual Screening</p> <p>c. Investigation of Suspected Illicit Discharges - Procedures Submitted - Investigate 45 outfalls identified in Permit Application</p> <p>d. Procedures to Prevent, Contain and Respond to Spills - Procedures Submitted</p> <p>e. Public Reporting of Illicit Discharges, Illicit Connections, and Improper Disposal - Establish Hotline & submit procedures for Follow-up - Maintain & submit Log of Activity & Follow-up</p> <p>f. Develop/Implement Educational Program</p>	<p>- Ongoing throughout the permit term</p> <p>- 90 days after effective permit date - in years 2 and 5 of permit term</p> <p>- 12 months after effective permit date - 24 months after effective permit date</p> <p>- 24 months after effective permit date</p> <p>- 12 months after effective permit date</p> <p>- submit with annual reports - beginning in year 2 & continuing thereafter</p>
3. Industrial and High Risk Runoff	<p>a. Program Development - Identify & Map Facilities</p> <p>b. Educational Material - Develop Materials & Make Available</p> <p>c. Investigation of Suspected Discharge - Develop & Submit Procedures - Summarize Investigative Activities & Referral Follow-up</p>	<p>- Years 3, 4 & 5 of the permit term</p> <p>- 24 months after effective permit date</p> <p>- Years 1 & 2 of permit term with annual reports</p> <p>- Submit with annual reports throughout permit term</p>
4. Construction Site Runoff	<p>a. Program Development - Project Review & Approval Procedures</p> <p>b. BMP Selection Requirements - Update BMP requirements</p> <p>c. Site Inspection and Enforcement Procedures - Submittal of Strategy - Site Inspection Procedure Implementation</p> <p>d. Training and Education for Site Operators - Procedures Submitted - Implementation</p>	<p>- 12 months after effective permit date (continue existing procedures - effective immediately)</p> <p>- Years 4 & 5 of permit term</p> <p>- 12 months after effective permit date - 24 months after effective permit date</p> <p>- 12 months after effective permit date - 24 months after effective permit date</p>
5. Public Participation and Education	<p>Continued Public Education Efforts</p> <p>c. Technical Advisory Board</p>	<p>- throughout permit term</p> <p>- 12 months after effective permit date</p>

6. Monitoring	<ul style="list-style-type: none"> a. Structural & Source Control Assessments b. Watershed Mapping c. Roadway Sand & Deicer Analyses d. Pesticides, Herbicides, & Fertilizers e. Illicit Discharges f. Receiving Water Monitoring <ul style="list-style-type: none"> - Chemical monitoring in four priority watersheds to obtain event mean concentrations - Macroinvertebrate monitoring in four priority watersheds plus 3 watersheds incurring development pressure g. Dry & Wet Weather Definitions 	<p>- All monitoring shall take place in accordance with schedules included in Appendix "A" which is to be submitted annually for review and approval</p> <p>-- six (6) months after effective date of permit</p>
7. Programmatic Coordination	Conduct annual meetings	- annually, beginning 90 days after effective permit date

PART IV ADDITIONAL PERMIT CONDITIONS

A. STANDARD PERMIT CONDITIONS

1. ***Duty to comply.*** Permittees must comply with all conditions of this Permit. Any Permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for Permit termination, revocation and reissuance, or modification; or denial of a Permit renewal application.
 - a. Permittees shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the Permit has not yet been modified to incorporate the requirement.
 - b. The Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed \$27,500 per day for each violation. The Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal

penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than 2 years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than 6 years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Clean Water Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.

- c. Any person may be assessed an administrative penalty by the Administrator for violating section 301, 302, 306, 307, 308, 318 or 405 of the Clean Water Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed \$11,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$27,500. Penalties for Class II violations are not to exceed \$11,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$137,500.
2. ***Duty to reapply.*** If Permittees wish to continue an activity regulated by this Permit after the expiration date of this Permit, Permittees must apply for and obtain a new permit.
3. ***Need to halt or reduce activity not a defense.*** It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit.
4. ***Duty to mitigate.*** Permittees shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. ***Proper operation and maintenance.*** Permittees shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by Permittees to achieve compliance with the conditions of this Permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by Permittees only when the operation is necessary to achieve compliance with the conditions of the Permit.
6. ***Permit actions.*** This Permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by Permittees for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.
7. ***Property rights.*** This Permit does not convey any property rights of any sort, or any exclusive privilege.
8. ***Duty to provide information.*** Permittees shall furnish to the Regional Administrator, within a reasonable time, any information which the Regional Administrator may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit or to determine compliance with this Permit. Permittees shall also furnish to the Regional Administrator upon request, copies of records required to be kept by this Permit.
9. ***Inspection and entry.*** Permittees shall allow the Regional Administrator, or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon Permittees' premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Permit;

- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and
- d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

10. ***Monitoring and records.***

- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- b. Except for records of monitoring information required by this Permit related to Permittees' sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), Permittees shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the application for this Permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Administrator at any time.
- c. Records of monitoring information shall include:
 - (1) The date, exact place, and time of sampling or measurements;
 - (2) The individual(s) who performed the sampling or measurements;
 - (3) The date(s) analyses were performed;
 - (4) The individual(s) who performed the analyses;
 - (5) The analytical techniques or methods used; and
 - (6) The results of such analyses.
- d. Monitoring results must be conducted according to test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, unless other test procedures have been specified in the Permit.

- e. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

11. ***Signatory requirement.***

- a. All applications, reports, or information submitted to the Regional Administrator shall be signed and certified. (See 40 CFR § 122.22)
- b. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

12. ***Reporting requirements.***

- a. Planned changes. Permittees shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:
 - (1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR § 122.29(b); or
 - (2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the Permit, nor to notification requirements under 40 CFR § 122.42(a)(1).
 - (3) The alteration or addition results in a significant change in Permittees' sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;

- b. Anticipated noncompliance. Permittees shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- c. Transfers. This Permit is not transferable to any person except after notice to the Regional Administrator. The Regional Administrator may require modification or revocation and reissuance of the Permit to change the name of Permittees and incorporate such other requirements as may be necessary under the Clean Water Act. (See 40 CFR § 122.61; in some cases, modification or revocation and reissuance is mandatory.)
- d. Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this Permit.
 - (1) Monitoring results must be reported on a Discharge Monitoring Report (“DMR”) or forms provided or specified by the Regional Administrator for reporting results of monitoring of sludge use or disposal practices.
 - (2) If Permittees monitors any pollutant more frequently than required by the Permit using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in the Permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Administrator.
 - (3) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Regional Administrator in the Permit.
- e. Compliance schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted no later than 14 days following each schedule date.
- f. Twenty-four hour reporting.
 - (1) Permittees shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time Permittees become aware of the circumstances. A written submission shall also be provided within 5 days of the time Permittees become aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not

been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

- (2) The following shall be included as information which must be reported within 24 hours under this paragraph.
 - (a) Any unanticipated bypass which exceeds any effluent limitation in the Permit.
 - (b) Any upset which exceeds any effluent limitation in the Permit.
 - (c) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Regional Administrator in the Permit to be reported within 24 hours. (See 40 CFR § 122.44(g)).
 - (3) The Regional Administrator may waive the written report on a case-by-case basis for reports under paragraph (IV)(A)(12)(f)(2) of this Permit if the oral report has been received within 24 hours.
- g. Other noncompliance. Permittees shall report all instances of noncompliance not reported under paragraphs (IV)(A)(12)(d-f) of this Permit, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (IV)(A)(12)(f) of this Permit.
 - h. Other information. Where Permittees become aware that Permittees failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Administrator, Permittees shall promptly submit such facts or information.

13. ***Bypass--***

- a. Definitions.
 - (1) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.
 - (2) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

- b. Bypass not exceeding limitations. Permittees may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (IV)(A)(13)(c) & (d) of this Permit.
- c. Notice--
 - (1) Anticipated bypass. If Permittees know in advance of the need for a bypass, Permittees shall submit prior notice, if possible at least ten days before the date of the bypass.
 - (2) Unanticipated bypass. Permittees shall submit notice of an unanticipated bypass as required in paragraph (IV)(A)(12)(f) of this Permit (24-hour notice).
- d. Prohibition of bypass.
 - (1) Bypass is prohibited, and the Regional Administrator may take enforcement action against a Permittee for bypass, unless:
 - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (c) Permittees submitted notices as required under paragraph (IV)(A)(13)(c) of this Permit.
 - (2) The Regional Administrator may approve an anticipated bypass, after considering its adverse effects, if the Regional Administrator determines that it will meet the three conditions listed above in paragraph (IV)(A)(13)(d)(1) of this Permit.

14. *Upset--*

- a. Definition. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of Permittees. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (IV)(A)(14)(c) of this Permit are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - (1) An upset occurred and that Permittees can identify the cause(s) of the upset;
 - (2) The permitted facility was at the time being properly operated;
 - (3) Permittees submitted notice of the upset as required in paragraph (IV)(A)(12)(f) of this Permit (24 hour notice); and
 - (4) Permittees complied with any remedial measures required under paragraph (IV)(A)(4) of this Permit.
- d. Burden of proof. In any enforcement proceeding Permittees seeking to establish the occurrence of an upset has the burden of proof.

B. SEVERABILITY

The provisions of this Permit are severable, and if any provision of this Permit, or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Permit shall not be affected thereby.

C. STATE/ENVIRONMENTAL LAWS

1. Nothing in this Permit shall be construed to preclude the institution of any legal action or relieve Permittees from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Clean Water Act, 33 U.S.C. § 1370.
2. Nothing in this Permit shall be construed to relieve Permittees of their obligation to comply in full with all state and federal environmental statutes and regulations.

D. ADDRESSES:

Submittals required by this Permit shall be made to the following addresses:

EPA REGIONAL OFFICE: United States Environmental Protection Agency
222 W. 7th Ave., Box 19
Anchorage, Alaska 99513-7588
Attn: Jacqueline H. Poston

ADEC OFFICE: Alaska Department of Environmental Conservation
Watershed Management Section
555 Cordova St.
Anchorage, AK 99501

E. ADDITIONAL MONITORING BY PERMITTEES

If Permittees monitor more frequently than required by this Permit, using test procedures approved under 40 CFR Part 136, or equivalent, or as specified in this Permit, the results of this monitoring shall be included with the data submitted as part of the annual report required by Part IV.G. of this Permit.

F. ARCHEOLOGICAL AND HISTORICAL SITES

1. Where municipal excavation and/or construction projects implementing requirements of this Permit will result in the disturbance of previously undisturbed land, Permittees shall, thirty (30) days prior to commencing land disturbance, submit the following to the State Historic Preservation Officer ("SHPO") for evaluation of possible effects on properties listed or eligible for listing on the National Register of Historic Places:
 - a. a description of the construction or land disturbing activity and the potential impact that this activity may have upon the ground, and
 - b. a copy of a USGS topographic map outlining the location of the project and other ancillary impact areas. The address of the SHPO is:

Ms. Judith E. Bittner
Chief, History and Archeology
Department of Natural Resources
Division of Parks and Outdoor Recreation
3601 "C" Street, Suite 1278
Anchorage, Alaska 99503-5921
(907) 269-8721

2. If Permittees receive requests for an archeological survey or notice of adverse effects from the SHPO, Permittees shall delay such activity until:
 - a. a determination of no adverse effect has been made, or
 - b. measures to minimize harm to historic properties have been agreed upon.
3. If Permittees do not receive notification of adverse effects or a request for an archeological survey from the SHPO within thirty (30) days, Permittees may proceed with the activity.

G. ANNUAL REPORTS

1. Within one (1) year of the effective date of this Permit, and annually thereafter, Permittees shall prepare and submit to EPA and ADEC an Annual Report. In addition, copies of all annual reports shall be available to the public through the municipal library system. The Annual Report shall be mailed to the addresses found at Part IV.D. of this Permit and shall include, at a minimum:
 - a. A report on the status of implementing the components of the Storm Water Management Program that are established as Permit conditions;
 - b. Proposed changes to the Storm Water Management Program required by this Permit. Such proposed changes shall be consistent with 40 CFR § 122.26(d)(2);
 - c. Revisions, if necessary, to the assessments of controls and the fiscal analysis reported in the Part 2 of the Permit Application;
 - d. A summary of the data, including monitoring data, that Permittees accumulated throughout the reporting year;
 - e. Annual expenditures and budget for the year following each annual report;
 - f. A summary describing the number and nature of enforcement actions, inspections, and public education programs, including copies of all educational materials distributed in conjunction with efforts to reduce pollutant discharges to the MS4;

- g. Identification of water quality improvements or degradation; and
- h. All other information required by this Permit to be submitted with the Annual Report.

H. MODIFICATION OF THE PERMIT

All modifications to this Permit shall be made in accordance with 40 CFR §§ 122.62, 122.63, and 124.5. The Permit may be modified during the life of the Permit to address:

- 1. changes in the State's Water Quality Management Plan, including Water Quality Standards;
- 2. changes in State or Federal statutes or regulations;
- 3. adding a new Permittee who is the owner or operator of a portion of the MS4;
- 4. changes in portions of the Storm Water Management Program that are considered Permit conditions; or
- 5. other modifications deemed necessary by the Regional Administrator to meet the requirements of the Act.

I. TERMINATION OF COVERAGE FOR A SINGLE PERMITTEE

Permit coverage may be terminated, in accordance with the provisions of 40 CFR §§ 122.64 and 124.5, for a single Permittee without terminating coverage for other Permittees.

J. MODIFICATION OF STORM WATER MANAGEMENT PROGRAM

Only those portions of the Storm Water Management Program specifically required as permit conditions shall be subject to the modification requirements of 40 CFR §§ 122.62, 122.63 and 124.5. Addition of the following components, controls, or requirements by Permittees shall be considered minor changes to the Storm Water Management Program and not modifications to the Permit: replacement of an ineffective or infeasible BMP; implementing a requirement of the Storm Water Management Program with an alternate BMP expected to achieve the goals of the original BMP; and changes required as a result of schedules contained in Part III of this Permit.

K. APPROVAL OF SUBMITTALS

- 1. The following approval procedures shall apply to:
 - a. Schedule & Scope of Assessments (Part II.A.1.a.(4)(b));
 - b. Roadway Deicing Management and Monitoring Plan (Part II.A.1.c.(1))

- c. Inspection and Enforcement Strategy for New Development and Significant Redevelopment (Part II.A.b.(6)(b));
- d. Site Inspection and Enforcement Strategy at Construction Sites (Part II.A.4.c.(1)); and
- e. Monitoring program (Part II.A.6. and Appendix “A”);
- f. Definitions of Dry and Wet Weather (Part II.A.6.)

This Part will refer to each of the foregoing six (6) reports as “submittals.”

- 2. After reviewing any submittal or other item which is required to be submitted for review and approval pursuant to this Permit, EPA may:
 - a. approve the submittal (“approval”);
 - b. approve the submittal with modifications (“modified approval”);
 - c. disapprove the submittal and direct Permittee(s) to revise the submittal in accordance with EPA's comments (“revision request”); or
 - d. disapprove the submittal (“disapproval”).

Should EPA fail to issue its determination on a submittal timely submitted by Permittee(s), within 60 days of EPA's receipt that submittal shall be deemed to have received approval.

- 3. In the event of approval or modified approval by EPA, Permittees shall proceed to comply with any conditions imposed by the approved submittal, as approved or modified by EPA.
- 4. In the event of a revision request, Permittees shall, within five (5) days or such longer time as specified by EPA in its notice of request for revisions, correct the deficiencies and resubmit the plan, report, or other item for approval. Notwithstanding any revision request, Permittees shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submittal.
- 5. If any submittal or resubmittal does not ultimately receive approval or modified approval by EPA, Permittees shall have failed to comply with the conditions and requirements of this Permit.

PART V DEFINITIONS

The following definitions apply to this Permit. Except as otherwise specifically provided, terms used in this Permit but not defined by this Part shall have the meaning ascribed to them by Section 502 of the Clean Water Act (33 U.S.C. § 1362), 40 CFR § 122.2, and 40 CFR § 122.26(b). These statutory and regulatory definitional sections are incorporated herein by reference.

1. "Discharge" refers to a discharge of storm water from the Municipal Separate Storm Sewer System (MS4).
2. "Landfill" means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.
3. "MEP" is an acronym for "Maximum Extent Practicable," the technology-based discharge standard for Municipal Separate Storm Sewer Systems established by Section 402(p) of the Clean Water Act, 33 U.S.C. § 1342(p).
4. "MS4" is an acronym for "Municipal Separate Storm Sewer System" and is used in this Permit to refer to those portions of the Medium Municipal Separate Storm Sewer System within the corporate limits of the Municipality of Anchorage that are owned and operated by the Municipality of Anchorage or the Alaska Department of Transportation and Public Facilities.
5. "Permit Application" refers to the submissions required as part of the NPDES permit application process and includes Part One (May 1992), Part One Appendices (May 1992), Maps (May 1992), Part Two (May 1993), Part Two (May 1993), and the Response to Comments (December 1994).
6. "Permittee" refers to any "person," as defined at 40 CFR § 122.2, authorized by this NPDES Permit to discharge to Waters of the United States.
7. "Regional Administrator" means the Regional Administrator of Region 10 of the United States Environmental Protection Agency or an authorized representative of the Regional Administrator. The Regional Administrator may be contacted at the address set forth at Part IV.D. of this Permit.
8. "Storm Water Management Program" refers to the comprehensive program described in this permit to manage the quality of storm water discharged from the MS4. For the purposes of this Permit, the Storm Water Management Program is considered a single document, but may actually consist of separate programs (e.g., "chapters") for each Permittee

Appendix “A”

MUNICIPALITY OF ANCHORAGE WATERSHED MANAGEMENT SECTION

ASSESSMENT PROGRAM

NPDES Storm Water Permit: First 5-year Term

1.0 PROGRAM DESIGN AND COORDINATION

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2.2 Illicit Discharges

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 - Bottom Sediments
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 - Opportunities & Constraints Analysis
 - Source Analysis
 - Controls Analysis
 - Watershed Analysis Report

4.2 Impact Assessments

- 4.2.1 *Street Deicer Impacts*
- 4.2.2 *Street Sediment Impacts*

5.0 SUPPORT

5.1 Watershed Database and GIS

5.2 Logistics Support

1.0 PROGRAM DESIGN AND COORDINATION

The WMS Assessment Program is envisioned as a complex multi-faceted effort requiring the attention of dedicated and skilled Municipal staff and contractors over relatively long time frames. In part, the very complexity of the proposed program reflects the fact that the development of information through collection and interpretation of new data can be optimized by tightly integrating the information collection efforts of the various assessment tasks. To support this close-knit structure, the Municipality will coordinate staff and contractor efforts through formal quarterly meetings and through distribution of an annual report of on-going assessment activities. The annual report will also serve as a means of proposing modifications to the Watershed Assessment Program as outlined here.

The information gathering efforts of the WMS Assessment Program will be structured across three areas of emphasis. **Source assessments** seek to quantify and define the principal sources of pollutants entering storm water runoff. **Controls assessments** seek to evaluate the potential for reduction of pollutant loads from storm water runoff by various means. **Receiving water assessments** seek to describe quantitatively the condition of waters with respect to storm water impacts and management practices over time, so that Anchorage's Storm Water Management Program can continually re-focus on the worst pollutant sources and select the most efficient control practices.

Finally, all assessment projects will be designed to meet explicitly stated management information needs. Each design document will describe: what management information need the project will resolve; how the information is intended to be used to make watershed management decisions; what real-world systems are intended to be represented considered in designing the data collection effort; what methods will be used for gathering, analyzing and interpreting the data; and what budget, schedules and quality control activities will define acceptable project completion.

In summary, with this proposed program the Municipality and its co-applicant, the State of Alaska Department of Transportation and Public Facilities, proposes implementation of an integrated and comprehensive assessment program designed to efficiently support the watershed management goals of Anchorage as well as meet the legal requirements of the city's NPDES permit to discharge storm water. Abbreviated discussions of proposed planned assessment program elements efforts are outlined below.

2.0 SOURCE ASSESSMENTS

First term *source assessment projects* have been selected based on current understanding of the principal sources of pollutants in Anchorage urban runoff, and to reflect legal regulatory requirements. Sources to be directly addressed include: street pollutants (principally street sediment and pollutants adsorbed to the sediment), illicit discharges (unapproved non-storm water point source discharges which are not storm water runoff), pesticides, and pathogenic organisms (as represented by the indicator bacteria taxa, fecal coliform). Other sources of impacts to receiving waters will be addressed indirectly through mapping of whole systems and correlative analysis as described for the Watershed Characterization Program (see Section 4.21)

2.1 Street Sediment

2.1.1 *Street Sediment Sources Inventory mass Balance*

Management Goals: Efficient control of street pollutants, particularly at the source.

Management Information Need: Identification and quantification of principal street sediment sources.

Information Use: Prioritization of sources of street dirt for control, and identification of alternative efficient control practices and maintenance schedules. [Data on the composition of pollutants adsorbed on sediments will also be used in the Adsorbed Pollutants Load on Street Sediments task (see Section 2.1.3.)]

Systems Addressed: Winter street sanding, snow haul and street sweeping wastes, and stud wear.

Representation Method: Application inventory, seasonal street load sampling, and asphalt or other compositional testing of representative areal samples.

Scheduled Activities: Detailed design in permit year 1. Data collection, years 1,2, and 3. Interpretive report, year 4.

2.1.2 *Commercial Parking Lots Sources*

Management Goals: Efficient control of street pollutants, particularly at the source.

Management Information Need: Quantity and quality of sediment buildup and wash-off from private and public commercial parking and paved access areas.

Information Use: Adjustment of street sediment control programs to reflect relative

impacts of parking commercial areas sediment sources and identification of alternative control practices and maintenance schedules for parking facilities. [Adsorbed fecal coliform data will also be used by the Pathogens Assessment task (see Section 2.4)].

Systems Addressed: Large commercial and public paved parking areas, commercial parking area sanding and deicing practices, pollutant washoff, and O&M practices and scheduling.

Representation Method: Sampling and inventory of paved surfaces sediment loads and sediment characteristics (particle size, mass, fecal coliform and other adsorbed pollutants) and wet weather sampling of runoff to reflect range of seasonal mobilization.

Scheduled Activities: Detailed design, permit year 2; data collection, year 3; interpretive report, year 4.

2.1.3 Street Sediment Adsorbed Pollutant Load on Street Sediments

Management Goals: Efficient control of street pollutants, particularly at the source.

Management Information Need: Relative contaminant loading of selected street sediment sources.

Information Use: Prioritization of street dirt sources for control and treatment, and identification of best control application locations and times (O&M practices and scheduling) based on adsorbed POL loads, particle sizes, transport route and transport timing. [Adsorbed fecal coliform data will also be used by the Pathogens Assessment Task (see Section 2.4).]

Systems Addressed: Snow disposal site sediment wastes, street sweeping wastes, and sedimentation basin wastes.

Representation Method: Aerially and seasonally representative sampling of waste streams and quantification of distribution of metals, petroleum contaminants and fecal coliform adsorbed to sediment particles of various size ranges. Data on the composition of pollutants adsorbed on sediments from Task 2.1.1, Street Sediment Sources Inventory, will be used in this task.

Scheduled Activities: Detailed design, data collection and interpretive report, permit year 3.

2.2 ILLICIT DISCHARGES: Dry Weather Screening

Management Goals: Reduction of point sources of chronic dry weather pollutant

releases.

Management Information Need: Location of point sources of chronic pollutant releases.

Information Use: Request for mitigation of chronic pollutant source.

Systems Addressed: Major Urban storm drains and target landuses, dry weather flows, targeted pollutants, and chronic point pollutant sources.

Representation Method: Establishment of actionable thresholds for selected parameters and identification of priority classes of outfall and land use targets for screening based on Municipality 1991-2 dry and wet weather sampling data, field sampling of discharges from targeted storm drain systems based on target priorities and ad hoc reports, and attempt on-site source confirmation or rejection of suspected pollutant sources. Prepare field investigation summary report and submit to program manager in support of any necessary mitigation or enforcement action.

Scheduled Activities: Prepare visual inspection plan including list of outfalls and visual inspection criteria, 90 days from effective date of permit; prepare project design for chemical analysis including methodologies and prioritization of target outfalls and land uses, permit year 1; institute field sampling and reporting program, years 2 through 5, annually.

2.3 PESTICIDE SOURCES: Pesticide Screening

Management Goals: Minimize pesticide impacts on water resources.

Management Information Need: Screening characterization for the presence of regulated quantities of pesticides in urban storm flows and recommendations of types and uses for priority management and control.

Information Use: Clarification of existing database information (in past investigations pesticides have not been detectable in Anchorage storm waters or receiving waters), and identification of priority appropriate source control targets for development of controls, and regulatory compliance.

Systems Addressed: Types, mass and methods of pesticide areal applications made by Municipal, commercial, industrial and residential landscapers and gardeners. Sheet flow runoff to storm drains and receiving waters.

Representation Method: Identify commercial sources of pesticides and ; inventory estimates of annual sales volume by pesticide category; based on volume and type

estimates, identify highest risk drainage basins for investigation; and sample storm water flow and/or lake water column for pesticide presence at representative set of identified sensitive basins using laboratory analyses to confirm any positive results; and prepare summary report qualifying probable pesticide impact and source.

Scheduled Activities: Inventory and detailed sampling design, permit year 1; sampling and reporting, years 2 - 5.

2.4 PATHOGEN SOURCES: Fecal Coliform

Management Goals: NPS fecal pollutants source and impacts characterization identification.

Management Information Need: Confirmation of source of elevated fecal coliform counts in receiving waters, and identification of risk represented by elevated coliform counts for health of human populations, and advisory information for use of public swimming beaches.

Information Use: Correlation of health risk versus receiving water use, development of indicator targeted for identified risk source, and focused development of source controls.

System Addressed: Elevated in-stream fecal coliform events, storm water transport routes, seasonal and spatial human and animal fecal sources and mass, and associated risks from human pathogens.

Representation Method: Review of loadings from sources, in-stream and controls assessments (i.e., data collected from Street Sediment Sources Projects 2.1.2 and 2.1.3, Storm Water Treatment in Wetlands Treatment Controls Project 3.1.3, and Receiving Water Chemistry Project 4.1.3.2). Assess likely risks to humans by analysis of correlations to associations of probable pathogens of fecal source to human pathogens, prospective transport routes and exposure potential. Continue periodic fecal coliform monitoring at Municipal swimming beaches. Prepare summary report and submit to program manager.

Scheduled Activities: Review Anchorage field data and project design, permit year 4; sampling analysis and interpretive risk assessment report, year 5. Provide periodic updates to swimming beach fecal coliform advisories, year 1 through 5.

3.0 CONTROLS ASSESSMENTS

Controls assessments will provide information about the applicability and efficiency of alternate methods which could be used in the prevention, reduction or treatment of storm water pollutants, either at the source or in transport. First term control assessments reflect the city's concern with street sediment as a primary storm water pollutant and transport medium for other adsorbed pollutants. Characterization of Anchorage sedimentation basins, study of oil/grit separator feasibility for municipal-scale use, and investigation of the feasibility of use of wetlands for storm water treatment will continue in efforts to assess useful applications of these controls in Anchorage. Non-structural controls are also proposed to be addressed in this term. Assessment of street sweeping practices will identify alternate technologies, management practices and schedules which can lead to improvement in both air quality and water quality for the Municipality.

3.1 Structural Controls Assessments

3.1.1 Sedimentation Basins Characterization:

Scheduled Activities: This effort has been completed with a draft interpretive report available for review. Summary documentation is scheduled for completion in 1998.

3.1.2 Oil/Grit Separator (OGS) Feasibility

Management Goals: Efficient control and treatment of street pollutants mobilized by storm water, at the source and at end-of-pipe.

Management Information Need: Predictive models for spatial and temporal characterization of urban street sediment buildup and decay and mobilization by storm water processes, and estimates of cost efficiency of municipal-scale end-of-pipe applications of OGS technology for treatment of municipal storm water runoff. Guidance for appropriate area-wide selection, design, and operation and maintenance of municipal-scale OGS technology.

Information Use: Decisions for application of municipal-scale OGS with opportunity for cost effectiveness comparison to alternate BMPs.

System Addressed: Drainage basin characteristics and seasonal variation in pollutant loading and outfall discharge, and OGS treatment devices for end-of-pipe municipal applications.

Representation Method: Outfall basin infrastructure and land use characterization,

sampling of street sediment loading and character, sampling of basin storm water discharges (snow and rainfall runoff), and computer modeling of pollutant buildup, washoff and OGS treatment.

Scheduled Activities: Data analysis ongoing. Schedule for the interpretive report and summary documentation is due within 90 days of the effective date of the permit.

3.1.3 Storm Water Treatment In Wetlands

Management Goal: Quantification of range of impacts on receiving water resulting from discharge of Anchorage urban storm water, and control and reduction of those impacts.

Management Information Need: Probable short- and long-term range of impacts to the vegetation and hydrology of natural wetlands resulting from the application of controlled storm water discharges, and identification of BMPs recommended for optimum pretreatment of storm water prior to discharge to wetlands.

Information Use: Development of criteria for required pretreatment controls for urban storm water discharges to wetlands, and guidance for the use of natural wetlands for treatment of storm water discharges in Anchorage.

System Addressed: Storm water discharges, passive small scale pretreatment devices, sedimentation processes, and water quality parameters in seasonal regimes. Diversity and viability of wetland biotic floral communities exposed to storm water discharge.

Representation Method: Sedimentation and plant nutrient/pollutant uptake and pollutant pass-through in natural wetlands and pilot treatment facilities.

Scheduled Activities: Schedule is due within 90 days from the effective date of the permit. Proposed detailed design, permit year 2; field sampling, years 2, 3, and 4; interpretive report, year 4.

3.2 Non-Structural Controls

3.2.1 Street Sweeping Best Practices

Management Goals: Efficient treatment of street pollutants, particularly at the source.

Management Information Needs: Identification of the efficiencies of selected street sweeping practices over the normal range of Anchorage road conditions as affected by season and climate. Identification and efficiency ranking of street sweeping practices for

a given road characteristics type, condition, and time of year.

Information Use: Selection and scheduling of best street dirt removal methods by street type, condition and season.

System Addressed; Anchorage urban streets with storm water drainage systems.

Representation Method: Measurement of street sediment loads before and after application of selected street sweeping techniques over to a variety of road characteristics types, and over various seasonal conditions and mass loadings.

Scheduled Activities: Project design, year 1; data collection and interpretation, permit years 1 through 3 .

3.2.2 Land-use Applications in Storm Water Source Control

Management Goals: Prevention and potential treatment of pollutants.

Management Information Needs: Identification of existing and future land uses and estimates of the potential for pervious open spaces to provide preventive measures as well as storm water treatment. Demonstration of irreversible hydrological changes due to continued expansion of impervious surfaces.

Information Use: Provide land use options for local jurisdiction.

System Addressed: The Municipality of Anchorage.

Representation Method: Mapping depicting current and potential future land uses, hydrology, and other known resource data (e.g. aquatic life and habitat types). Additional evaluation tools to be determined.

Scheduled Activities: Project design, permit year 1. Data collection and interpretation, permit year 2.

4.0 RECEIVING WATERS ASSESSMENTS

Receiving waters assessments are intended to serve two fundamental information needs in Anchorage's watershed management program. First, these assessments will provide information about the opportunities and constraints specific receiving waters present for the range of uses the community may have for those waters. Taken in context with those community uses, this information is useful in prioritizing receiving waters for either protection or enhancement of opportunities or in removal of constraints. Second, compared over time (trend analysis), assessment information provides a measure of the effectiveness of applied practices in achieving watershed management goals (i.e., in maintaining or enhancing water resource uses).

The proposed receiving waters assessment program is designed to meet these information needs through impacts and watershed characterization assessments. First term impacts assessments will address potential effects of area-wide chemical street deicer use on streams and lakes, and will assess street sediment accumulation in urban streams. Watershed characterization will be performed in a closely coordinated series of projects. These projects will include physical mapping of streams and their drainage areas (Watershed Mapping) and in-stream characterization including collection of hydrologic, chemical and biotic information (Receiving Waters Assessment). These two data collection efforts will be tied together by analysis of the resulting data to provide planners and managers with information about alternative management for enhancement of desired receiving water uses (Watershed Analysis).

4.1 Impacts Assessments

4.1.1 Street Deicer Impacts - DO and Phosphorus

Management Goal: Characterize overall effects of street maintenance activities on quality of Anchorage stream water in context with aquatic life and a range of other Anchorage stream uses.

Management Information Need: Quantify potential impacts of chemical substitutes for winter sand on receiving water quality and uses and provide management guidance (spatial, temporal, quantity, quality) for application of typical chemical street deicers.

Information Use: Development of appropriate application rates and schedules for chemical street deicers for specific street locations.

Systems Addressed: Street deicers and application practices, urban drainage systems, seasonal conditions of receiving waters (lakes and streams during winter and break-up), and support conditions for aquatic life.

Representation Method: Field sampling and analysis of selected parameters (BOD and phosphorus) in storm water and adsorbed to settleable particulates for winter and spring as they relate to deicer use, and modeling of effects of pollutant loading on receiving water conditions (detention times in lakes, estimation of settlement potential for phosphorus adsorbed to particulates, DO depletion/reaeration conditions, etc).

Scheduled Activities: Detailed design, year 1; field sampling, year 1 & 2; interpretive report, year 2.

4.1.2 Street Sediment Impacts Assessment

Management Goals: Characterize overall effects of street maintenance activities on quality of Anchorage stream water in context with aquatic life and a range of other Anchorage stream uses and identify appropriate cost-effective controls to support uses.

Management Information Needs: Sediment character (particle size), associated pollutants, and spatial and temporal loads of street sediment mobilized by storm water to receiving waters.

Information Use: Target and prioritize street sediments and associated pollutants for development of control practices.

System Addressed: Street sediments, urban drainage systems, receiving waters.

Representation Method: Identification of adsorbed pollutant loads (petroleum hydrocarbons and trace metals) and character on street sediments by particle size. Analysis of mobilized sediment particle size distributions and adsorbed pollutants in baseflow and high flow conditions. Comparison of street pollutant loading characteristics with that of stream bed particles and associated adsorbed pollutant loads for selected reaches.

Scheduled Activities: Detailed design, field sampling, and interpretive report, year 3

4.2 Watershed Characterization

This project is intended to lead to a comprehensive understanding of the relationship between urbanization development of a watershed and the ability to support a range of beneficial uses over specific stream reaches. The project will bring together information about the physical setting of the stream (represented by mapping of the stream and the contributing watershed) with information about the physical, chemical, and biological integrity of the watercourse. Information will be collected that defines the opportunities and constraints offered by any

piece of a watercourse for a range of community uses. Observed stream effects will be directly correlated with probable causes so that appropriate management actions can be targeted and selected. From this watershed perspective, scientists and engineers will then define a range of enhancement options and associated costs/benefits to guide managers in planning and prioritizing watershed management activities.

In time, it is expected that each of the 26 streams identified in the NPDES permit application will be addressed through this characterization process. In the first permit term, priority will be given to streams which are currently stressed by urban development yet provide the greatest opportunity to support a variety of uses. Characterization of Chester Creek, Campbell Creek, Ship Creek, Rabbit Creek and other important drainages discharging to Potter Marsh are top priorities for the first permit term.

4.2.1 Project Planning and Design

This ongoing effort will provide for integration and coordination of various characterization tasks. The Watershed Analysis task (4.2.4) is expected to generate useful management information (cost/benefit curves relating alternative management activities to enhancement of waterways uses), the Mapping and Receiving Waters projects (tasks 4.2.2 and 4.2.3) will be fundamentally substantially supportive in function to the Analysis task.

Scheduled Activities: Detailed design, permit year 1; on-going Watershed Characterization Program coordination and design revisions, years 2 through 4.

4.2.2 Watershed Mapping

Management Goal: Develop and refine mapping of physical characteristics of stream watersheds and waterways in context with support of multiple stream uses including at minimum flood capacity, in- and near-stream biotic productivity, recreational opportunities, land use and impervious surface areas, and visual aesthetics.

Management Information Need: Digital and hardcopy map products depicting selected characteristics of storm water outfall basins, near-stream corridors and in-stream corridors.

Information Use: Provision of accurate base mapping of water resources-related watershed characteristics for use as base receiving waters location maps; for use in identifying opportunities and constraints for a range of uses near and in Anchorage waterways; and for use in showing time and spatial trends in critical watershed characteristics. Mapping information will be further analyzed in the watershed analysis

project element to provide managers with planning level information for use in prioritizing stream uses and comparing impacts of alternative future land use scenarios on receiving waters. This mapping should contain data and overlays also required by the Open Space plan (see Section 3.2.2 *Land Use Applications in Storm Water Source Control*).

System Addressed: In-stream and near-stream systems (including riparian and stream habitat), and drainage basins (including conditions correlative to pollutant generation, storm water transport systems, and socioeconomic factors).

Representation Method: Map watercourse location using GPS along stream thread; map riparian habitat, HSI, stream bed and channel geometry from field measurement; and map along 1000' stream corridor and over drainage basin using existing base map information. Map themes will include base mapping from existing Municipal data sources (including, for example, streets, trails, drainage boundaries, storm drain networks, outfalls, storm control structures, land use, permit locations, etc.) as well as new or derived data (including, for example, updated stream centerline locations, channel geometry, land cover, land ownership and gross valuation, etc.), all presented in a watershed context. Display graphically by stream reach.

Scheduled Activities: Detailed design, permit year 1; waterways mapping, substantially in permit years 1 and 2 with mapping revisions and updates in years 3 through 5; in-stream mapping, substantially in years 1 and 2; drainage basin mapping and development of digital watershed maps, substantially in permit years 1 and 2 with mapping revisions and update support in years 3 through 5. A similar sequence of mapping efforts of other watersheds is anticipated to take place in following permit terms.

4.2.3 Receiving Waters Assessment

4.2.3.1 Hydrology

Management Goal: Provide hydraulic characterization of Anchorage streams.

Management Information Need: Continuous stream flow data for selected Anchorage streams.

Information Use: Determine effect of storm water runoff on variability of stream discharge; provide basis for calculation of total streamborne contaminant loads.

System Addressed: Continuous total discharge in major watersheds through the year above the influence of tides or impoundments.

Representative Method: Continuous flow monitoring gages at Rabbit Ck near Old Seward (or other appropriate location in context with assessing local drainages influence

on Potter Marsh), Chester Ck at Arctic, Campbell Ck at Dimond and upstream near Piper St., and Ship Ck. near Reeve Blvd. Staff gages at other WQ sampling sites.

Scheduled Activities: Establish gaging stations, permit year 1; data collection, field maintenance and reporting, years 1 through 5, annually, with equipment replacement/repair scheduled for year 5. A similar data collection sequence for these or other watersheds is anticipated to take place in following permit terms.

4.2.3.2 Receiving Water Chemistry

Management Goals: Characterize overall effects of urban development on quality of Anchorage stream water in context with aquatic life and a range of other usual Anchorage stream uses. Characterize Anchorage waterways in terms of potential and existing fish productivity.

Management Information Need: Provide measurement of exceedances of selected water quality standards in Anchorage receiving waters. Provide measurement of event mean concentrations of selected water quality parameters for a range of storm flows and seasonal conditions. Provide storm event pollutant correlations.

Information Use: Provide for legal defensibility of permit and ensure sustained effort of permittee to reduce degradation of receiving waters to MEP based on water quality standards. Evaluation of overall effectiveness of Anchorage's Watershed Management Program in context with water quality standards. Estimation of total annual load of pollutant carried in stream. Prioritization of problems, target sources, and adjustment of permit requirements. Analysis of in-stream pollutant sources.

System Addressed: Water chemistry and discharge characteristics representative of total stream flow at downstream points for late winter, spring breakup, early summer (low flow), late summer/fall (high flow), and early winter periods during both baseflow and stormflow conditions.

Representation Method: Obtain flow-weighted 24-hour composite samples during 12 baseflow and stormflow events (unless conditions prohibit data collection) at downstream locations on Campbell, Chester, Ship Creeks, and Rabbit Creeks (or other appropriate location in context with assessing the influence of important local drainages on Potter Marsh),. Develop event mean concentrations (EMC) for Cu, Pb, Zn, fecal coliform, hardness, TSS, turbidity, temperature, conductivity, and pH.

Scheduled Activities: Project design, equipment installation and first year data collection

and report in permit year 2; second year data collection, permit year 4; total load estimates, graphic data analysis, and final data report permit year 4 and 5. Equipment replacement/repair will also take place in permit year 5. A similar data collection sequence for these or other watersheds is anticipated to take place in following permit terms.

4.2.3.3 Bioassessment

Management Goal: Characterize Anchorage waterways in terms of potential and existing fish productivity.

Management Information Need: Characterize the aquatic biotic communities of discrete stream reaches for comparison to reference reaches and other stream reaches. Describe the implications the observed of Anchorage biotic communities have for the probable condition of local aquatic habitat relative to conventional interpretation of community conditions. Identify long term trends in the quality and character of stream biotic communities.

Information Use: Direct measure of stream ecosystem condition. Development of long term time series of biotic indices. The Watershed Analysis project (see Section 4.1.4) will also use this data in conjunction with in-stream, near stream, and drainage basin mapping information to link stream impacts to watershed activities and conditions for use in cost/benefits analysis of waterways watershed management enhancement alternatives.

System Addressed: Biological communities within reaches of streams reflective of common sets of in-stream, near-stream and basin-wide factors which could reasonably impact those communities.

Representation Method: Survey of macroinvertebrates and possibly or other biota using RBP or IBI protocols. Sample 25± sites at Rabbit, Ship, Chester, and Campbell Creeks and other selected Anchorage streams.

Scheduled Activities: Detailed design, permit year 1; first year field sampling, graphic data analysis, and data report, permit year 2 (in sequence with the Watershed Mapping, Hydrology and Receiving Water Chemistry tasks); and second year field sampling, graphic data analysis, and final data report, permit year 3 (allowing calibration of first year data). A similar data collection sequence for these or other watersheds is anticipated to take place over a five to ten year cycle in following permit terms.

4.2.3.4 Bottom Sediments

Management Goal: Characterize Anchorage waterways in terms of potential to support

aquatic wildlife.

Management Information Need: Determine geometry, sorting, size and other characteristics of representative stream bed substrate and define effects of storm-carried sediments on Anchorage stream bed substrate character relative to potential fish productivity.

Information Use: Identification and prioritization of sediment pollutants and development of appropriate controls for sediment in urban storm water discharges.

System Addressed: Stream bed sediment character and structure, Anchorage fish populations, macroinvertebrates, sources of sediment loading in storm water flows.

Representation Method: Identify range in stream bed sediment character; measure representative stream bottom substrate character (particularly parameters representative of particle embedment); compare to character of reference reaches and local sediment loading character and sources.

Scheduled Activities: Detailed design, field sampling and final report, permit year 3, sequenced to match other sediment characterization tasks and to support bioassessment data report preparation.

4.2.4 Watershed Analysis

Management Goal: Management and support of a range of waterways uses along discrete waterway reaches using the most cost-effective means. Identification of opportunities and constraints along discrete stream reaches for a range of potential receiving water uses, and identification of changes in those opportunities and constraints with time.

Management Information Need: Identification of a suite of watershed management alternatives supportive of a range of waterways uses, and descriptions of the cost/benefits presented by each alternative for selected waterways and waterway reaches. Specifically, identification, prioritization, and selection of different stream reaches for enhancement and management for a range of uses; identification of sources of limitations to receiving water uses (including identification of exceedances of selected water quality standards); identification of best control practices to mitigate sources of limitations; and analysis of cost-effectiveness of selected control practices along selected stream reaches.

Information Use: Selection and implementation of a range of watershed management activities which can cost-effectively support, enhance and protect selected priority uses of discrete waterways and waterways reaches. Description of the short and long-term

effects which alternative storm water management practices are most likely to have on the range of opportunities for uses of receiving water resources. Identification of alternative management practices which will promote and protect an optimum range of receiving water uses, with particular focus on those watersheds which are not yet fully developed.

System Addressed: In-stream and near-stream systems (including riparian and stream habitat, stream biotic communities, bottom sediment, and water column chemistry), drainage basins (including pollutant sources, transport systems and socioeconomic factors), and stream uses.

Representation Method: Model information from Watershed Mapping and Receiving Waters Assessment efforts to identify the constraints and opportunities relative to support of prospective uses along specific waterways reaches. Identify alternative controls or modifications to existing controls (to enhance use opportunities) and assess cost-effectiveness of application of controls on enhancement of stream uses. Graphically display cost-benefits of application of alternative controls by stream reach.

Scheduled Activities: As this project drives and integrates information collected in all the other receiving waters assessments tasks, design for this project will be incorporated in the overall Watershed Characterization Program design (task 4.2.1) and will be initiated in conjunction with the effective date of this permit. Analysis of all task data to identify waterways uses opportunities and constraints and primary sources of identified constraints will be completed in permit year 4. Cost-benefit analysis of alternative management controls for selected uses along specific waterway reaches and a final interpretive report will be prepared in permit year 5. A similar sequence in data analysis and cost-benefit analysis for uses along these waterways and receiving waters in other watersheds is anticipated to take place in following permit terms.